CLASS 178, TELEGRAPHY

SECTION I - CLASS DEFINITION

Means for transmitting to a distance messages, unlimited with respect to the extent of information they are adapted to convey, and the transmission and facsimile reproduction of written, printed, or otherwise produced characters, marks, pictures, etc., unlimited with respect to form or outline, by the utilization of conductive or inductive electrical current impulses or reversals, the elements of the messages being selected or composed at will, according to a prearranged code, or the transmitter being actuated or controlled by a previously designed pattern.

(1) Note. Electric signaling means that are limited with respect to the number, character, or subject matter of messages adapted to be conveyed thereby or with respect to the selection of the elements of a message or the possibility of composing the same thereby are deemed to be electric signals, indicators, and alarms rather than electric telegraphs. Means for the conversion of sound waves into conductive or inductive electrical impulses and reconversion into sound waves for reproduction of sounds at a distance are classified as telephones.

SECTION II - REFERENCES TO OTHER CLASSES

SEE OR SEARCH CLASS:

136, Batteries: Thermoelectric and Photoelectric, subclasses 243+ for electro-optical cells.

324, Electricity: Measuring and Testing, appropriate subclasses for electrical testing systems not limited to telegraphy.

330, Amplifiers, appropriate subclasses for amplifiers.

333, Wave Transmission Lines and Networks, for electric wave transmission systems wherein electromagnetic wave energy is guided or constrained by a wave propagation medium of appreciable electrical length as compared to the wave length of the propagated energy. This class includes numerous electrical networks and components useful in telegraphy. Note particularly subclass 20 for wave shaping networks of the passive type, subclass 23 for artifical lines, subclasses 24+ for coupling networks, which include equalizers, impedance matching networks, delay networks, and wave filters, subclass 81 for attenuators, subclasses 236+ for longe transmission lines, and subclasses 1+ for plural channel systems of the above which include branched circuits and hybrid type networks.

338, Electrical Resistors, subclasses 15+ for photoconductive electrical resistors.

340, Communications: Electrical, for electric systems of communication not peculiar to telegraph code signaling. Note Particularly subclasses 825+ for selective systems analogous to the selective systems utilized in telegraphy but restricted to the communication of a limited amount of information or control signals, subclasses 287+ and 533+ for signal box systems such as the American district telegraph or fire alarm systems, and subclass 320 for signaling along a fluid conduit.

341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter.

356, Optics: Measuring and Testing, for devices which may involve facsimile systems to test light, or articles or substances by means of light for optical properties, dimensions, configuration, or flaws, particularly subclass 308 and 309 for spectrographic scanning devices, subclasses 629, 639, 640, and 398 for mensuration or configuration devices involving scanning, subclasses 404 and 405 for photographic or tristimulus color tests, and subclass 444 for light transmission tests involving scanning.

359, Optics: Systems (Including Communication) and Elements, subclasses 227+ and 238+ for light valves.

361, Electricity: Electrical Systems and Devices, subclasses 1+ for electrical safety systems not limited to telegraphy.

370, Multiplex Communications, appropriate subclasses for a multiplexing system, particularly subclasses 298+ for multiplexed teletypewriter service.

375, Pluse or Digital Communications, appropriate subclasses for nontelegraphic pulse or digital communications.

379, Telephonic Communications, subclasses 108.01+ for combinations of telegraph and signaling systems with telephone systems or means for sending signals over telephone circuits, subclasses 338+ for telephone type repeaters. Class 171 for amplifiers.

380, Cryptography, appropriate subclasses for cryptographic techniques and equipment.

400, Typewriting Machines, appropriate subclasses for a remote-control typewriter, and see (1) Note in Lines With Other Classes and Within This Class in Class 400 for discussion of the difference between a typewriter of Class 400 and a printing telegraph of Class 178.

455, Telecommunications, appropriate subclasses for nonpulse carrier wave communications.

SUBCLASSES

1 This subclass is indented under the class definition. Means and parts and accessories thereof not otherwise provided for.

2 This subclass is indented under the class definition. Miscellaneous means for transmitting messages between stations telegraphically not otherwise provided for that include a plurality of telegraph instruments, such as transmitting and receiving instruments, in circuit.

(1) Note. Telegraphing and telephoning by Hertzian Waves guided by transmission lines between stations and all line or conductive transmission systems therefor are classified, respectively, in appropriate subclasses under Class 178, Telegraphy and 379, Telephonic Communications.

(2) Note. For telemetric systems specific to measuring, see Class 73, Measuring and Testing; Class 33, Geometrical Instuments, subclasses 267, 312, 317, 363, and 366.11.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43, for telegraphing by induction on neighboring lines, etc.

47, for harmonic or vibratory transmission systems and essential accessories.

64, for applications of induction-coils and transformers to telegraphy.

66.1, for alternating current transmission.

74, for subcombinations comprising a plurality of connected instruments or local circuits at one station employed in transmitting or receiving, such as combinations of key and battery, induction-coils, and the like.

SEE OR SEARCH CLASS:

33, Geometrical Instruments, (see (2) Note).

73, Measuring and Testing, (see (2) Note).

246, Railway Switches and Signals, subclasses 3+ for central signal control, and subclass 7, and appropriate indented subclasses for train telegraphy or telephony.

310, Electrical Generator or Motor Structure, subclasses 10+ for dynamoelectric machine structure for generating electrical current.

333, Wave Transmission Lines and Networks. See the reference to this class under “SEARCH CLASS”, in the class definition above.

336, Inductor Devices, appropriate subclass for the structure of transformers and inductor devices.

338, Electrical Resistors, appropriate subclasses, for electrical resistors, per se.

340, Communications: Electrical, subclasses 825+ for selective nontelegraph systems, analogous to the selective systems utilized in telegraphy but restricted to the communication of a limited amount of information or control, subclasses 870.01+ for telemetering systems, and subclasses 287+ for signal box telegraph systems.

341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter.

346, Recorders, appropriate subclass.

370, Multiplex Communications, appropriate subclasses for multiplexing systems.

375, Pulse or Digital Communications, subclass 218 for pulse communications using an earth or water transmission medium.

377, Electrical Pulse Counters, Pulse Dividers, or Shift Registers: Circuits and Systems, for electrical pulse counters and registers.

429, Chemistry: Electrical Current Producing Apparatus, Product, and Process, for electrochemical batteries useful in telegraphy.

455, Telecommunications, subclass 40 for analog modulated carrier wave communications via an earth or water medium.

3 This subclass is indented under subclass 2. Systems having transmitting means employing perforated strip or tape, code-type, patterns, etc.

(2) Note. There are numerous other record controlled means in other classes which as to some characteristics may be references for the record controlled mechanisms of this class. Attention is called to the following classes.

SEE OR SEARCH CLASS:

66, Textiles: Knitting, particularly subclasses 231+ for pattern mechanism.

83, Cutting, subclasses 76.1+ for a pattern-controlled cutting or punching machine.

84, Music, the subclasses indented under "Automatic", starting with subclass 2, the selecting or record controlled means being in subclasses 115+.

87, Textiles: Braiding, Netting, and Lace Making, particularly subclasses 14+ for apparatus with pattern mechanism.

101, Printing, particularly subclass 19 and 20 for piercing embossing machines, and subclasses 93 and 96 for bed and platen machines.

112, Sewing, particularly subclass 4 for Jacquard card sewing machines, subclasses 470.01+ for a pattern controlled sewing machine and subclasses 78+ for a pattern controlled embroidery-type sewing machine.

139, Textiles: Weaving, particularly subclasses 317+ for the record controlled mechanism.

144, Woodworking, subclasses 137+ for a pattern controlled shaping machine.

199, Type Casting, particularly subclass 74 for pattern controlled rotary matrix type cast machines, and subclass 77 for pattern controlled slidable matrix machines.

200, Electricity: Circuit Makers and Breakers, subclass 46 for pattern-sheet controlled switches.

209, Classifying, Separating, and Assorting Solids, particularly subclasses 532, 554, 612, 613, 619, and 688 for automatic perforated articles assorting machines.

234, Selective Cutting (e.g., Punching) subclasses 59+ for a record-controlled punching machine with a plurality of individually movable tools.

235, Registers, subclass 56 for vote counters, and subclasses 419+ for record controlled calculators.

276, Typesetting, particularly subclass 13 for pattern controlled type setting machines.

341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for pulse code transmitter.

400, Typewriting Machines, appropriate subclasses for pattern controlled typewriting machines.

409, Gear Cutting, Milling, or Planing, subclasses 79+ for a pattern controlled milling machine; and subclasses 289+ for a pattern controlled planing machine.

4 This subclass is indented under subclass 3. Automatic systems adapted to print the message at the receiving station.

SEE OR SEARCH THIS CLASS, SUBCLASS:

23+, for printing telegraphs other than automatic.

SEE OR SEARCH CLASS:

101, Printing, for the art of printing.

235, Registers, for printing features specific thereto.

346, Recorders, (see Class 235 above).

400, Typewriting Machines, for typewriters not peculiarly adapted for printing telegraphs and for typewriters connected by the same number of wires as there are keys or for electrically actuated typewriters, and subclasses 70+, for perforated tape actuators for typewriters.

4.1 This subclass is indented under subclass 4. Systems of remote control for starting and/or stopping printer motors at called or calling sta-

tions or both by either manually or automatically transmitted impulses or code.

SEE OR SEARCH THIS CLASS, SUBCLASS:
53.1, for start-stop rotary distributor synchronizers for multiplex systems.

SEE OR SEARCH CLASS:
370, Multiplex Communications, appropriate subclasses for multiplexing systems.

15 This subclass is indented under subclass 3. Automatic systems other than facsimile that employ photographic recorders.

SEE OR SEARCH THIS CLASS, SUBCLASS:
90, for photographic recorders of general application to telegraphy.

SEE OR SEARCH CLASS:
358, Facsimile and Static Presentation Processing, subclass 302 for facsimile systems with photographic recorders.
386, Television Signal Processing for Dynamic Recording or Reproducing, subclasses 30, 42+, and 128+ for photographic television recording or reproducing, particularly subclasses 38 and 117 for video apparatus combined with camera for recording television signal.

16 This subclass is indented under subclass 3. Automatic systems in which direct and reversed currents are employed, usually with pole changers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
8, for multiple pen facsimile systems.
17, for automatic transmitters or recorders.
62, for chemical-type telegraph systems.
63, for cable-type telegraph systems.
67.1, for modified alternating current telegraph systems.
69, for line clearing and circuit maintenance systems.

SEE OR SEARCH CLASS:
361, Electricity: Electrical Systems and Devices, subclasses 245+ for pole changers of general application.

17 This subclass is indented under subclass 3. Means specific to automatic systems for transmitting automatically or for recording.

SEE OR SEARCH THIS CLASS, SUBCLASS:
3+, for automatic transmitters combined in systems, particularly subclass 4 for printing systems, and subclass 16 for current reversing systems.
36, for type printing recorders.
43, for space induction systems.
48, for receivers and recorders peculiar to harmonic or tone telegraphy.
62, for recorders operating by chemical action.
79, for transmitters for transmitting code signals and not specific to any particular system of telegraphy.
89, for Morse registers and other code-recorders for producing a record of code signals on suitable receiving surfaces.

SEE OR SEARCH CLASS:
83, Cutting, appropriate subclasses, particularly subclasses 202+ for a feeding and cutting or punching machine.
84, Music, subclass 19 for perforated-strip controlled pianos; subclass 107 for perforated-strip controlled musical instruments; subclass 147 for perforated-strip controlled automatic selectors; and subclass 462 for electric type recording devices.
234, Selective Cutting (e.g., Punching), for a selective punching machine, and appropriate subclasses for pattern control, programmed control, etc., of such a machine.
276, Typesetting, subclasses 12+ for perforated strip and keyboard transmitting apparatus.
340, Communications: Electrical, subclasses 287+ and 533+ for signal box telegraph systems having signal box transmitters.

341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter.

361, Electricity: Electrical Systems and Devices, subclasses 245+ for pole changing transmitters or current reversers.

17.5 This subclass is indented under subclass 17. Automatic transmitters comprising means for accumulating messages or code-signals in advance of actual transmission.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3, for storing-transmitters in combination with other elements of an automatic system.

SEE OR SEARCH CLASS:

315, Electric Lamp and Discharge Devices: Systems, subclasses 8.51+ for cathode ray tube systems for accumulating or storing electrical pulse energy for later retrieval, and subclasses 84.51+ for similar electrical pulse storage systems utilizing electric space discharge devices of the gaseous type.

18.01 Position coordinate determination for writing (e.g., writing digitizer pad, stylus, or circuitry):

This subclass is indented under subclass 2. Subject matter wherein X,Y coordinates of a designed writing pattern such as a graph or a character inputted by an operator manipulable pointing device (e.g., stylus or the like) or by an operator directly touching a sensing surface of a tablet (e.g.,digitizing pad) are defined.

(1) Note. Included here is a writing digitizer pad, a stylus, or circuitry for position coordinate determination without a display device claimed..

SEE OR SEARCH THIS CLASS, SUBCLASS:

18.03, for a writing digitizer pad for position coordinate determination.

19.01, for a writing digitizer stylus for position coordinate determination.

20.01, for a writing digitizer circuit for position coordinate determination.

SEE OR SEARCH CLASS:

200, Electricity: Circuit Makers and Breakers, subclasses 512+ for a membrane-type solid contact relating to a switch of a touchpad.

340, Communications: Electrical, subclass 407.1 for a tactual indicator.

341, Coded Data Generation or Conversion, subclass 5 for X - Y coordinate determination in a digital pattern reading-type converter and subclasses 20+ for bodily actuated code generators in which an operator makes physical contact to control the transmission or generation of a coded set of pulses.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 173+ for a combination of a display device and a writing digitizer pad, a stylus, or circuitry for position coordinate determination.

364, Electrical Computers and Data Processing Systems, subclasses 709.01+ for an electric digital calculating computer using specialized input.

901, Robots, subclass 33 for a tactile sensor.

18.02 Error correction:

This subclass is indented under subclass 18.01. Subject matter including means to compensate for distortion of the inputted position coordinates.

SEE OR SEARCH CLASS:

341, Coded Data Generation or Conversion, subclass 24 for bodily actuated code generators with error prevention means.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 178 for touch panels with alignment or calibration capability.

714, Error Detection/Correction and Fault Detection/Recovery, appropriate subclasses for error detection, correction, recovery or prevention in pulse code data or computers.

18.03 Writing digitizer pad:

This subclass is indented under subclass 18.01. Subject matter including a characteristic or a structure of the sensing surface of the tablet used to transform the inputted position coordinates data into planar coordinate information that can be read and understood by a computer.

(1) Note. A digitizer pad claimed with display device is classified in Class 345, subclass 173. Otherwise it is included in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:

18.01, for writing position coordinate determination.

SEE OR SEARCH CLASS:

340, Communications: Electrical, subclass 407.1 for a tactual indicator.

341, Coded Data Generation or Conversion, subclass 5 for X and Y coordinate determination in a digital pattern reading-type converter and subclasses 20+ for bodily actuated code generators in which an operator makes physical contact to control the transmission or generation of a coded set of pulses.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 173+ for a combination of a display device and a writing digitizer pad, a stylus, or circuitry for position coordinate determination.

364, Electrical Computers and Data Processing Systems, subclass 190 for a positional input to a data processing control system and subclasses 709.01+ for an electric digital calculating computer using specialized input.

18.04 Acoustical (e.g., vibration, ultrasonic, etc.):

This subclass is indented under subclass 18.03. Subject matter wherein position coordinates are determined by a property (e.g., type, material, temperature, or structure of connection) of a device, designed to transform an acoustical signal (e.g., vibration, ultrasonic waves, or the like) into an electrical signal, that is included in the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.02, for an acoustical writing digitizer stylus.

47, for harmonic or vibratory transmission systems and essential accessories.

SEE OR SEARCH CLASS:

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 177 for a combination of a display device and a writing digitizer pad with acoustic detection for position coordinate determination.

367, Communications, Electrical: Acoustic Wave Systems and Devices, subclasses 99+ for distance or direction finding and cross-reference art collection 907 for coordinate determination.

18.05 Resistive:

This subclass is indented under subclass 18.03. Subject matter wherein position coordinates are determined by a property (e. g., dimensions, material, temperature, or structure of connection) of a resistor that is included in the sensing surface of the tablet.

SEE OR SEARCH CLASS:

338, Electrical Resistors, subclasses 15+ for photoconductive electrical resistors.

18.06 Capacitive:

This subclass is indented under subclass 18.03. Subject matter wherein position coordinates are determined by a property (e. g., dimensions, material, temperature, or structure of connection) of a capacitor that is included in the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.03, for an inductive or a capacitive writing digitizer stylus.

SEE OR SEARCH CLASS:

341, Coded Data Generation or Conversion, subclass 15 for capacitive responsive digital pattern reading-type converters and subclass 33 for bodily actuated code generators including keyboard or keypad with capacitive sensor.

361, Electricity: Electrical Systems and Devices, subclasses 277+ and 301.1+ for variable and fixed capacitors .

18.07 Inductive:

This subclass is indented under subclass 18.03. Subject matter wherein position coordinates are determined by a property (e. g., dimensions, material, temperature, or structure of connection) of a magnetic field generating coil that is included in the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.03, for an inductive or a capacitive writing digitizer stylus.

43, for telegraphing by induction on neighboring lines, etc.

64, for applications of induction coils and transformers to telegraphy.

SEE OR SEARCH CLASS:

246, Railways Switches and Signals, subclass 8 for inductive communication signals (telegraphy or telephony) between trains and the dispatcher or other stations.

341, Coded Data Generation or Conversion, subclass 15 for inductive responsive digital pattern reading-type converters and subclass 32 for bodily actuated code generators including a keyboard or keypad with magnetic or inductive sensors.

18.08 Having shield:

This subclass is indented under subclass 18.07. Subject matter wherein means are provided for reducing or eliminating extraneous electromagnetic energy from the digitizer pad.

SEE OR SEARCH THIS CLASS, SUBCLASS:

69, for telegraph interference neutralizing.

SEE OR SEARCH CLASS:

174, Electricity: Conductors and Insulators, subclasses 32+ for anti-inductive structures of conductors and insulators.

336, Inductor Devices, subclasses 84+ for inductor devices with shields.

379, Telephone, subclasses 416+ for an anti-inductive telephone system.

18.09 Optical:

This subclass is indented under subclass 18.03. Subject matter wherein position coordinates are determined by a property (e. g., type, material, temperature, and structure of connection) of a photocell (e.g., photodiode or phototransistor) that is included in the sensing surface.

SEE OR SEARCH THIS CLASS, SUBCLASS:

19.05, for a light pen used as a writing digitizer stylus.

119, for receivers that convert received telegraph signals into a perceptible form using optical devices.

SEE OR SEARCH CLASS:

341, Coded Data Generation or Conversion, subclasses 13+ for a digital pattern reading-type converter using optical device and subclass 31 for a bodily actuated code generator including a keyboard or keypad with an electric light sensor.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 175 for a combination of a display device and a writing digitizer pad with optical detection for position coordinate determination.

18.11 With illumination:

This subclass is indented under subclass 18.03. Subject matter including means to brighten the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18.1, for a digitizing pad having display.

SEE OR SEARCH CLASS:
362, Illumination, subclasses 227+ and 257+ for single or plural light sources for general illumination.
364, Electrical Computers and Data Processing Systems, subclasses 709.01+ for an electric digital calculating computer using specialized input.

19.01 Writing digitizer stylus:
This subclass is indented under subclass 18.01. Subject matter including a structure or a characteristic of a handheld pointing device which provides position coordinate input to the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18.01, for position coordinate determination for writing.

SEE OR SEARCH CLASS:
341, Coded Data Generation or Conversion, subclass 5 for X and Y coordinate determination in a digital pattern reading-type converter using a stylus pad.
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 179 for a combination of a display device and a stylus.
364, Electrical Computers and Data Processing Systems, subclasses 709.01+ for an electric digital calculating computer using specialized input.

19.02 Acoustical stylus:
This subclass is indented under subclass 19.01. Subject matter wherein the pointing device transmits acoustical signals (e.g., vibration, ultrasonic waves, or the like) to the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18.04, for an acoustical writing digitizer pad.
47, for harmonic or vibratory transmission systems and essential accessories.

SEE OR SEARCH CLASS:
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 179 for a combination of a display device and a stylus.
367, Communications, Electrical: Acoustic Wave Systems and Devices, cross-reference art collection 907 for coordinate determination.

19.03 Capacitive or inductive stylus:
This subclass is indented under subclass 19.01. Subject matter wherein the pointing device has means for capacitively or inductively coupling with the circuitry present in the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18.06, for a capacitive writing digitizer pad.
18.07+, for an inductive writing digitizer pad.
43, for telegraphing by induction on neighboring lines, etc.
64, for applications of induction coils and transformers to telegraphy.

SEE OR SEARCH CLASS:
333, Wave Transmission Lines and Networks, subclasses 24+ for coupling networks.
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 179 for a combination of a display device and a stylus.

19.04 Pressure stylus:
This subclass is indented under subclass 19.01. Subject matter wherein the pointing device has a built-in sensor (e.g., pressure sensor) which is automatically activated when the pointing device tip applies a force on the sensing surface of the tablet.

SEE OR SEARCH CLASS:
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclass 179 for a combination of a display device and a stylus.

19.05 Light pen:
This subclass is indented under subclass 19.01. Subject matter wherein the pointing device is a light sensitive device which consists of an optical lens and a photocell with associated circuitry mounted in a tubular housing.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18.09, for optical writing digitizer pad.

SEE OR SEARCH CLASS:
250, Radiant Energy, subclasses 227.13+ for a light pen, per se.
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 180+ for a combination of a display device and a light pen.

19.06 AC source:
This subclass is indented under subclass 19.01. Subject matter wherein the pointing device has means for transmitting an alternating current (AC) to circuitry present in the sensing surface of the tablet.

(1) Note. An alternating current is a flow of electricity which reaches maximum in one direction, decreases to zero, then reverses itself and reaches maximum in the opposite direction. The cycle is repeated continuously.

SEE OR SEARCH THIS CLASS, SUBCLASS:
66.1, for alternating current transmission.

19.07 Multifrequency:
This subclass is indented under subclass 19.06. Subject matter wherein the pointing device has means for transmitting an alternating current of different frequencies to the circuitry present in the sensing surface of the tablet.

SEE OR SEARCH THIS CLASS, SUBCLASS:
66.1, for alternating current transmission.

20.01 Writing digitizer circuit:
This subclass is indented under subclass 18.01. Subject matter including the interconnection of a number of electrical elements in one or more closed paths to perform the transformation of inputted position coordinates data into planar coordinate information that can be read and understood by a computer.

(1) Note. A writing digitizer circuit claimed with display device is classified in Class 345, subclass 173. Otherwise it is included in this subclass.

SEE OR SEARCH THIS CLASS, SUBCLASS:
18.01, for writing position coordinate determination.
74+, for subcombinations of systems or local circuit arrangements under the class definition not amounting to systems nor specific to any particular type of system.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 512+ for a membrane-type solid contact relating to a switch of a touchpad.
340, Communications: Electrical, subclass 407.1 for a tactual indicator.
341, Coded Data Generation or Conversion, subclass 5 for X - Y coordinate determination in a digital pattern reading-type converter, subclasses 20+ for bodily actuated code generators in which an operator makes physical contact to control the transmission or generation of a coded set of pulses, and subclasses 126+ for analog to or from digital converters.
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 173+ for a combination of a display device and a writing digitizer pad, a stylus, or circuitry for position coordinate determination.

364, Electrical Computers and Data Processing Systems, subclass 190 for a positional input to a data processing control system and subclasses 709.01+ for an electric digital calculating computer using specialized input.

20.02 Electrical filter or multiplexer:

This subclass is indented under subclass 20.01. Subject matter including an electrical element that can separate signals in accordance with specified criteria or that can accomplish simultaneous transmission of two or more signals over a common transmission medium.

SEE OR SEARCH CLASS:

327, Miscellaneous Active Electrical Nonlinear Devices, Circuits, and Systems, subclasses 551+ for a circuit including a filtering device to eliminate undesired signals.

341, Coded Data Generation or Conversion, subclass 5 for X - Y coordinate determination in a digital pattern reading-type converter and subclasses 20+ for bodily actuated code generators in which an operator makes physical contact to control the transmission or generation of a coded set of pulses.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 173+ for a combination of a display device and a writing digitizer pad, a stylus, or circuitry for position coordinate determination.

370, Multiplex Communication, appropriate subclasses for a circuit including a multiplexer.

20.03 Sampling circuit:

This subclass is indented under subclass 20.01. Subject matter including a circuit that measures position coordinate input signals at intervals of time.

SEE OR SEARCH CLASS:

327, Miscellaneous Active Electrical Nonlinear Devices, Circuits, and Systems, subclasses 91+ for miscellaneous sampling and holding circuits.

341, Coded Data Generation or Conversion, subclass 5 for X - Y coordinate determination in a digital pattern reading-type converter and subclasses 20+ for bodily actuated code generators in which an operator makes physical contact to control the transmission or generation of a coded set of pulses.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 173+ for a combination of a display device and a writing digitizer pad, a stylus, or circuitry for position coordinate determination.

20.04 Phase detecting:

This subclass is indented under subclass 20.01. Subject matter wherein position coordinates are determined by a circuit that discriminates the phase of the position coordinate input signals.

SEE OR SEARCH THIS CLASS, SUBCLASS:

327, Miscellaneous Active Electrical Nonlinear Devices, Circuits, and Systems, subclasses 2+ for a miscellaneous phase detecting circuit.

341, Coded Data Generation or Conversion, subclass 5 for X - Y coordinate determination in a digital pattern reading-type converter and subclasses 20+ for bodily actuated code generators in which an operator makes physical contact to control the transmission or generation of a coded set of pulses.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 173+ for a combination of a display device and a writing digitizer pad, a stylus, or circuitry for position coordinate determination.

21 This subclass is indented under subclass 2. Systems for transmitting stenos:graphic or shorthand messages, characters, or abbreviated codes corresponding thereto and generally employing a transmitter or receiver, or both, of the multiple-pen type.

SEE OR SEARCH CLASS:
380, Cryptography, appropriate subclasses for cryptographic equipment.
400, Typewriting Machines, subclasses 91+ for stenographic machines.

23 This subclass is indented under subclass 2. Systems for recording messages in typed letters or characters by impression or contact upon a suitable recording surface--as a tape, strip, sheet, or page--by means of type-wheels or type-levers, typewriters, or the like, actuated by current variations transmitted over one or more lines or conductors less in number than the number of characters of transmitting keys used.

SEE OR SEARCH THIS CLASS, SUBCLASS:
4, for telegraphic printing systems employing automatic transmitters.

SEE OR SEARCH CLASS:
318, Electricity: Motive Power Systems, subclasses 41+ for synchronizers of general application.
341, Coded Data Generation or Conversion, subclasses 20+ for bodily actuated code generators of general application.
345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 168+ for selective electrical control of image or message display system with a keyboard input means.
400, Typewriting Machines, subclasses 70+, and appropriate indented subclasses for typewriters operated by electromagnetic power or for systems in which the number of connecting transmission lines is the same as the number of keys or electromagnets connected thereby. In the typewriters of this group the electric operation replaces the mechanical actuation.

24 This subclass is indented under subclass 23. Systems for printing on bulletin boards.

25 This subclass is indented under subclass 23. Systems for printing in successive lines in page or column form.

SEE OR SEARCH CLASS:
276, Typesetting, subclasses 12+ for perforated strip and keyboard transmitting apparatus.

26.1 Translators:
This subclass is indented under subclass 25. Page printing systems in which Morse or other code signals are translated by selective mechanism, usually, but not necessarily at the letters corresponding thereto or having means for facilitating translation.

SEE OR SEARCH THIS CLASS, SUBCLASS:
63, for transmitting code signals by reversals or current.

SEE OR SEARCH CLASS:
276, Typesetting, subclasses 12+ for perforated strip and keyboard transmitting apparatus.
341, Coded Data Generation or Conversion, subclasses 50+ for digital code conversion in general.

27 This subclass is indented under subclass 25. Page printing systems in which "selectors" or devices for operating particular printing elements are selectively actuated by the signal impulses or currents and employed either at the sending or receiving station.

(1) Note. Rotary distributors or "sun-flowers" are not included herein.

SEE OR SEARCH CLASS:
340, Communications: Electrical, subclasses 825+ for nontelegraph selective systems, analogous to the selective systems utilized in telegraphy but restricted to the communication of a limited amount of information or control.
381, Electrical Audio Signal Processing Systems and Devices, subclasses 355+ for telephone call transmitters.

28 This subclass is indented under subclass 25. Page printing systems with typewheel recorders or inventions in transmitters plus page printing type-wheel recorders.

SEE OR SEARCH CLASS:
341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter.
381, Electrical Audio Signal Processing Systems and Devices, subclasses 355+ for telephone call transmitters.

29 This subclass is indented under subclass 28. Type-wheel recorders specialized for use in page printing systems.

SEE OR SEARCH CLASS:
400, Typewriting Machines, subclasses 70+ for electric-power-driven typewriters.

30 This subclass is indented under subclass 23. Printing systems in which each character is printed by the action of one or more of the printing elements that together form and record the character transmitted.

31 This subclass is indented under subclass 23. Telegraphy printing systems having a plurality of main connecting lines, but less in number than the number of transmitting keys of letters used. Excludes page or column printers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
24, for bulletin printing devices.
27, for printing page selectors.
28+, for wheel type recorder page printing systems.

SEE OR SEARCH CLASS:
400, Typewriting Machines, subclasses 70+ for typewriters connected by the same number of lines as there are keys when the object is electrical actuation.

32 This subclass is indented under subclass 31. Multiple-line circuit printing systems employing type wheel recorders.

33 This subclass is indented under subclass 23. Telegraphic printing systems having means for selectively operating one or more of a plurality of printing surfaces by the character of the signal impulses or current transmitted, but excluding sun-flower and step-by-step wheels without auxiliary selectors.

SEE OR SEARCH CLASS:
340, Communications: Electrical, subclasses 825+ for nontelegraph selective systems, analogous to the selective systems utilized in telegraphy but restricted to the communication of a limited amount of information or control.
381, Electrical Audio Signal Processing Systems and Devices, subclasses 355+ for telephone call transmitters.

34 This subclass is indented under subclass 33. Telegraph printing selector systems other than page printers employing type-wheel recorders.

35 This subclass is indented under subclass 23. Single line circuit systems other than page printers employing type-wheel recorders.

36 This subclass is indented under subclass 23. The recorders or printers, per se, specialized for use in printing telegraph systems not otherwise provided for in the subclasses hereunder and excluding page printers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
25, for page printing devices.
26, for page translating devices.
27, for page selecting devices.

37 This subclass is indented under subclass 36. Recorders for concealing or secreting the printed message from those not authorized to read it.

SEE OR SEARCH CLASS:
380, Cryptography, appropriate subclasses for cryptographic techniques and equipment.

38 This subclass is indented under subclass 36. Type-wheel recorders includes all type-wheel recorders other than page printers.

SEE OR SEARCH THIS CLASS, SUBCLASS:
28, for systems using type-wheel recorders.
29, for type-wheel recorders, per se.

SEE OR SEARCH CLASS:

400, Typewriting Machines, subclasses 139+ for specific structures of type-wheels.

39 This subclass is indented under subclass 38. Type-wheel recorders in which there are a plurality of circumferential rows of type, a row on the periphery of each of two or more type-wheels or a plurality of rows on a single wheel or its equivalent.

40 This subclass is indented under subclass 39. Multiple type-wheel recorders having means for shifting the type-wheel or the cooperating platen into position for printing.

SEE OR SEARCH THIS CLASS, SUBCLASS:

29, for shifting devices in type-wheel page printers.

41 This subclass is indented under subclass 38. Type-wheel recorders provided with means whereby all connected recorders on the line may be brought to unison or their type-wheels stopped in the same or the initial position.

SEE OR SEARCH THIS CLASS, SUBCLASS:

28, for unison means in page printers.

SEE OR SEARCH CLASS:

318, Electricity: Motive Power Systems, subclasses 41+ for means for synchronizing rotary members.

42 This subclass is indented under subclass 36. Means for guiding or feeding the paper or strip to the recorder in combination therewith or specific thereto.

SEE OR SEARCH CLASS:

226, Advancing Material of Indeterminate Length, appropriate subclasses for methods of, and apparatus for, feeding material without utilizing the leading or trailing ends to effect movement of the material.

242, Winding, Tensioning, or Guiding, subclasses 332+ or 354+ for means to direct material between a supply coil and take-up coil, subclasses 535+ and 548+ for a feeder or guide associated with convolute winding, subclasses 564.3+ and 566 for a feeder or guide associated with unwinding an elongated material, and subclasses 615+ for a guide directing indefinite length material.

400, Typewriting Machines, subclasses 578+ for paper feeding devices, and subclasses 191+ for ribbon mechanisms.

43 This subclass is indented under subclass 2. Systems for transmitting messages by induction (electrostatic or electromagnetic) through the intervening space between neighboring or adjacent conductors, coils, or other circuit elements.

SEE OR SEARCH THIS CLASS, SUBCLASS:

49, for use of coil transformers for superposing electrostatic or induced current signals upon lines already carrying ordinary Morse or other signaling current.

64, for use of induction-coils, transformers, etc., for current intensifying systems where the only space induction, is between the primary and secondary coils or is incidental and inconsequential and the object of the invention is current intensification and not space transmission by induction.

SEE OR SEARCH CLASS:

246, Railway Switches and Signals, subclass 8 for inductive train telegraphy or telephony; subclass 63 for inductive cable signal or train control; and subclass 194 for inductive train mechanism control.

336, Inductor Devices, appropriate subclasses for the structure of transformers and inductive reactors.

342, Communications: Directive Radio Wave Systems and Devices (e.g., Radar, Radio Navigation), appropriate subclasses, for radio and wireless signal and teledynamic systems. See especially Class 343, Communications: Radio Wave Antennas, subclasses 866+ for loop type antennas.

379, Telephonic Communications, subclass 55.1 for similar apparatus employed in telephony.

45 This subclass is indented under subclass 2. Wave transmission systems having claims for conductors or lines loaded with inductance coils, condensers, etc., for preventing or diminishing attenuation or distortion.

SEE OR SEARCH THIS CLASS, SUBCLASS:
46, for loading coils, per se.

SEE OR SEARCH CLASS:
174, Electricity: Conductors and Insulators, subclasses 32+ for structural arrangements of conductors for anti-inductive purposes.
333, Wave Transmission Lines and Networks, particularly subclass 23 for artificial lines that may simulate loaded lines, and subclasses 236+ for smooth transmission lines having distributed parameters.
343, Communications: Radio Wave Antennas, subclasses 749+ for antennas with a lumped reactance for loading the antenna; subclass 802 for doublet type antennas with distributed reactance added to the arms; and subclass 828 for fractional, multiple or full wave length linear type antennas with a nonuniformity in the antenna.
428, Stock Material or Miscellaneous Articles, subclass 592 for metallic stock material of helical configuration or having a helical component.

46 This subclass is indented under subclass 45. Induction or inductance coils for loading circuits or cables adapted to wave transmission systems.

SEE OR SEARCH THIS CLASS, SUBCLASS:
45, for cables or conductors provided with loading coils.

SEE OR SEARCH CLASS:
336, Inductor Devices, appropriate subclasses for the structure of transformers and inductive reactors.

47 This subclass is indented under subclass 2. Systems in which vibrating means, reeds, tuning forks, diaphragms, or rotary circuit interrupters, etc., are utilized in transmitting or receiving undulating currents and fundamentally characterized by the production of musical tones easily distinguishable from one another, so that a plurality of messages may be simultaneously transmitted over the same line.

SEE OR SEARCH THIS CLASS, SUBCLASS:
51, for simultaneous transmission of currents of different frequency, with tuned or resonant circuits, and usually generated by alternating current machines or equivalent.
82, for so-called “auto-dot” transmitters for transmitting dots by vibrating or reed circuit closers or interrupters.

SEE OR SEARCH CLASS:
84, Music, subclasses 723+ for electric music instruments provided with a tuned sound wave generator, which may be used to produce electric currents or potentials of a particular wave form.
200, Electricity: Circuit Makers and Breakers, subclasses 19.01+ for periodically actuated switches.
333, Wave Transmission Lines and Networks, subclasses 186+ for wave filters of the electromechanical transducer type.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 78+ for electromagnetically operated periodic switches.
336, Inductor Devices, appropriate subclasses for transformer and inductive reactor structure, and especially subclasses 130+ and the subclasses specified in the Notes thereto, for inductor devices which have a movable core (e.g., vibrating reed, etc.).
340, Communications: Electrical, subclasses 825.38+ for party line selective systems, not restricted to telegraphy, utilizing needs.
379, Telephonic Communications, subclass 180 for application of reeds to call systems in telephony.

48 This subclass is indented under subclass 47. Receiving or recording instruments for harmonic systems, generally comprising a vibratory element electromagnetically actuated by the pulsating, intermittent, or wave currents peculiar to harmonic systems and employed for interpreting or recording messages.

49 This subclass is indented under subclass 2. Composite systems and combinations of two or more distinct systems of transmission, usually by employing currents of different character for signaling, though not limited thereto. The superposed currents are generally produced by induction upon a line already carrying ordinary Morse or make and break current.

SEE OR SEARCH THIS CLASS, SUBCLASS:

44+, for wave transmitting systems having means to diminish or prevent distortion or attenuation, and especially applicable to long lines, cables, and systems having large capacity or inductance.

47, for simultaneous transmission of messages by harmonic or tone telegraphy.

51, for resonant circuits tuned by inductance or capacity, or both, to receive currents of particular frequencies.

SEE OR SEARCH CLASS:

336, Inductor Devices, appropriate subclasses for the structure of transformers and inductive reactors.

370, Multiplex Communications, appropriate subclasses, particularly subclasses 496, 527, and 529 wherein a signaling or nonsignaling information is superposed on a main information in a multiplex communication system.

379, Telephonic Communications, subclasses 37+ for protective signalling over a telephone line, subclasses 90+ for the combination of a diverse system of current transmission and a telephone system, subclasses 108+ for alternative use of a telephone or a telegraph over the same line.

62 This subclass is indented under subclass 2. Systems in which the message transmitted by current impulses or variations is recorded by the chemical or electrolytic action resulting therefrom; also recorders for recording code messages on chemically or specially prepared surfaces through the chemical change or electrolytic action produced by the impulses or current transmitted.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3+, for chemical systems having automatic transmitters, particularly subclass 11 for formation or production of records by successive-line apparatus.

89, and appropriate indented subclasses for features common to code-recorders.

111, for chemically prepared tapes.

SEE OR SEARCH CLASS:

205, Electrolysis: Processes, Compositions Used Therein, and Methods of Preparing the Compositions, subclasses 52+ for electrolytic processes of recording messages. The systems or other apparatus specialized for carrying out such processes are to be found in this class (178), subclass 62.

63 This subclass is indented under subclass 2. Systems adapted to the transmission of code signals over cables or long lines, involving large electric capacity and usually characterized by the use of reversals of current in transmission, clearing line, eliminating “tailings”, static compensation, etc.; also because of analogy of means all current reversing telegraph systems not otherwise classifiable.

SEE OR SEARCH THIS CLASS, SUBCLASS:

16, for automatic current reversing systems.

44, for wave transmitting systems having means to diminish or prevent distortion or attenuation, and especially applicable to long lines, cables, and systems involving large capacity or inductances.

55+, for quadruplex systems.

58+, for duplex systems.

69, for line clearing systems, per se.

SEE OR SEARCH CLASS:

333, Wave Transmission Lines and Networks, subclass 12 for transmission line inductive or radiation interference reduction systems, and subclass 23 for artificial lines simulating cable lines.

375, Pulse or Digital Communications, subclass 257 for cable systems and components.

64 This subclass is indented under subclass 2. Systems for transmitting messages by induced currents having an induction-coil or transformer, usually with its primary in a local circuit, with the transmitter and its secondary in the main line; also includes systems utilizing induction-coils or transformers between sections of the main line.

SEE OR SEARCH THIS CLASS, SUBCLASS:

43, for systems transmitting messages through appreciable space by induction between lines, coils, or other elements.

47, for harmonic or tone telegraphy employing circuit interrupting transmitters or vibrating receivers.

49, for use of transformer or induction-coil in superposed-current signaling.

SEE OR SEARCH CLASS:

336, Inductor Device, appropriate subclasses for the structure of transformers and inductive reactors.

379, Telephonic Communications, subclasses 37+ for protective signalling over a telephone line, subclasses 90+ for the combination of a diverse system of current transmission and a telephone system, subclasses 108+ for alternative use of a telephone or a telegraph over the same line.

65 This subclass is indented under subclass 2. Systems not otherwise classifiable employing dynamo or magneto-electric machine-generated currents and claiming dynamo or magneto-electric machine structure or arrangements specific to teles:graphic use and in combination with telegraph systems or instruments.

66.1 Alternating or pulsating current:

This subclass is indented under subclass 2. Systems using alternating, pulsating, sine, or similar wave currents in the transmission of messages, but excluding harmonic or reed systems (defined in subclass 47).

SEE OR SEARCH THIS CLASS, SUBCLASS:

49, for alternating current transmitting means employed in superposed current telegraphy.

63, for systems employing reversal of current and pole changers for reversing currents.

69, for prevention of leakage, induction, and “tailings” and for capacity compensation, etc., and not otherwise specific to duplex or a quadruplex or cable systems.

SEE OR SEARCH CLASS:

329, Demodulators, appropriate subclasses for demodulators and detectors in general, particularly subclasses 311+ for pulse demodulators; and subclasses 315+, for frequency demodulators and 345+ for phase demodulators respectively.

330, Amplifiers, appropriate subclasses for various types of amplifiers.

331, Oscillators, appropriate subclasses for electrical oscillators in general, particularly subclass 179 for step-frequency change oscillator systems (e.g., frequency shift type).

332, Modulators, appropriate subclasses for modulators, and particularly subclasses 117+ for frequency modulators, 144+ for phase modulators -- and -- 149+ --, respectively and subclasses 31+ for amplitude modulators.

375, Pulse or Digital Communications, subclasses 259+ for pulse or digital communication systems using alternating or pulsating current.

66.2 Transmitter keying:

This subclass is indented under subclass 66.1. Subject matter having a transmitter which is turned on and off or “keyed”.

SEE OR SEARCH THIS CLASS, SUBCLASS:

17+, for automatic keyed transmitters.

SEE OR SEARCH CLASS:

375, Pulse or Digital Communications, subclass 309 for pulse or digital transmitter keying circuits.

67.1 **Modified semicycle:**
This subclass is indented under subclass 66.1. Alternating current systems in which messages are sent by suppressing, reversing, augmenting, or otherwise modifying one or more halves of the sine or similar wave cycles on one or the other side of the line of zero potential, in accordance with a predetermined code.

69 This subclass is indented under subclass 2. Systems having means for clearing the line of static charges, preventing "tailings", neutralizing the residual magnetism of instruments, neutralizing inductance, adjusting against leakage, and in general maintaining the line circuit in normal condition, and though adapted to capacity or cable systems not limited thereto; also systems having means for preventing the detrimental effects produced by induction from external or internal causes and not specific to any particular system.

SEE OR SEARCH THIS CLASS, SUBCLASS:

3, for automatic telegraph systems.

16, for automatic current reversing systems.

44, for long line type transmission systems and coupling devices therefor.

45, for loaded line systems.

46, for loading coils, per se.

55+, and 58+, for similar means involved in quadruplex and duplex systems, respectively.

63, for combinations of such apparatus in and with specific systems of telegraphy.

SEE OR SEARCH CLASS:

307, Electrical Transmission or Interconnection Systems, subclasses 89+ for systems of transmitting electricity having means for preventing induction or coupling to other electrical systems.

333, Wave Transmission Lines and Networks, subclass 12 for transmission line inductive or radiation interference reduction systems.

379, Telephonic Communications, subclasses 398 and 415 for anti-inductive systems or devices for telephony.

69.6 This subclass is indented under subclass 2. Means for signaling a remote operator, who, in response to such signaling connects the recorder.

(1) Note. This subclass includes cross references of patents directed to other systems but including such means.

70 This subclass is indented under the class definition. Means whereby the relay, sounder, or recorder on the opening and closing of another circuit with which it is suitably connected is caused to repeat the signals received into another line or circuit. Repeaters of this subclass establish direct communication between distant stations or connect branch and main lines and operate in but one direction at a time and require the services of an attendant for changing the direction of the operation.

SEE OR SEARCH THIS CLASS, SUBCLASS:

56, for repeaters adapted to quadruplex telegraphy.

SEE OR SEARCH CLASS:

330, Amplifiers, appropriate subclasses for amplifiers of various types, particularly subclass 61 for those operating on the principle of the microphone.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, appropriate subclasses for electromagnetically operated circuit controllers generally, and subclasses 220+ for electromagnets with armatures.

340, Communications: Electrical, subclass 291 for signal box system repeaters, such as those which repeat signals arriving at a central to a plurality of fire houses.

361, Electricity: Electrical Systems and Devices, subclasses 236+ for speed controlled systems, subclasses 139+ for electromagnetic device control circuits, and subclass 211 for nonelectromagnetic relay control circuits.

375, Pulse or Digital Communications, subclasses 211+ for pulse repeaters.

379, Telephonic Communications subclasses 338+ for two way repeaters, specific to telephone work and usually operating on the principle of the microphone by varying the renewal current by variable contact pressure.

455, Telecommunications, subclasses 7+ for analog modulated carrier wave repeaters.

71.1 Automatic in either direction:
This subclass is indented under subclass 70. Telegraph repeater R which operates in either direction without the interposition or aid of an operator at the repeating station.

71.11 Piezoelectric:
This subclass is indented under subclass 71.1. Telegraph repeater using effect of a material which generated an electrical output when subjected to a mechanical stress.

71.12 Vacuum tube and relay:
This subclass is indented under subclass 71.1. Telegraph repeaters using a space discharge tube and an electromechanical operated contact.

71.13 Relay only:
This subclass is indented under subclass 71.1. Telegraph repeater using exclusively electromechanical operated contact.

71.14 Supervisory, alarm, monitor:
This subclass is indented under subclass 71.1. Subject matter having provision for indicating or handling an abnormal performance of the telegraph repeater.

71.2 Distributor:
This subclass is indented under subclass 71.1. Telegraph repeater having a signal supply means which rotates for successively connecting lines, or having switches which are selectively controlled by a code selection mechanism (e.g., keyboard).

71.3 Mechanical:
This subclass is indented under subclass 71.1. Telegraph repeater having details of motor driven cam-operated contacts.

71.4 Generator:
This subclass is indented under subclass 71.1. Telegraph repeaters in which signal currents are amplified by a dynamo electric device.

71.5 Artificial line and relay:
This subclass is indented under subclass 71.1. Telegraph repeater having an auxiliary line for balancing impedance and an electromechanical operated contact.

71.6 Vacuum tube and gas magnetron:
This subclass is indented under subclass 71.1. Telegraph repeater using a space discharge tube and an ultra or super high power generated electron tube.

71.7 Code transformer:
This subclass is indented under subclass 71.1. Telegraph repeater having means for translating direct current impulses of telegraph code signals into alternating carrier currents, or vice versa.

71.8 Oscillatory:
This subclass is indented under subclass 71.1. Telegraph repeater using a vibrating circuit for timing individual signal impulses.

71.9 One-way repeater switched:
This subclass is indented under subclass 71.1. Telegraph repeater having means to select a relay on either side of the repeater for transmitting or receiving.

72 This subclass is indented under subclass 71. Automatic repeaters in which the relay armature of the outgoing circuit is mechanically held by locks, catches, stops, etc., from breaking the circuit when the receiving relay opens the circuit.

73 This subclass is indented under subclass 71. Automatic repeaters adapted to repeat the transmitted messages into a plurality of circuits or lines.

74 This subclass is indented under the class definition. Subcombinations of systems or local circuit arrangements not amounting to systems nor specific to any particular type of system.

(1) Note. This subclass includes branch connections.

SEE OR SEARCH CLASS:
335, Electricty: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 220+ for electromagnets with armatures.
361, Electricity: Electrical Systems and Devices, subclasses 139+ for electromagnetic device control circuits, and subclass 211 for nonelectromagnetic relay control circuits.

75 This subclass is indented under subclass 74. Circuits provided with manipulating switches specific to telegraphy.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, for circuit controllers of general application.
361, Electricity: Electrical Systems and Devices, subclasses 600+ for switchboards of general application.
379, Telephonic Communications, subclasses 352+ for call transmitters; subclasses 242+ for switchboards; subclasses 422+ for switches, and subclass 302 for rotary contact switches, specific to telephone work.

76 This subclass is indented under subclass 74. Telegraph circuits having devices for closing the circuits after they have been left open or for gradual closing.

SEE OR SEARCH THIS CLASS, SUBCLASS:
104, for self-closing telegraph keys.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 33+ for retarded circuit controllers of general application, and subclass 108 for retarded latch trip electromagnetically actuated circuit controllers.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 59+ for retarded or delayed action electromagnetically actuated circuit controllers and subclasses 172+ for retarded latch trip means for electromagnetically actuated circuit controllers.

77 This subclass is indented under the class definition. Telegraph instruments structurally united in one or capable of performing the functions of two or more separate instruments, except combinations with transmitters, separately classified under “Code-transmitters.”

SEE OR SEARCH THIS CLASS, SUBCLASS:
80, for structural combinations of code-transmitters with some other telegraph instrument.
81, for transmitters combined with typewriters.

SEE OR SEARCH CLASS:
399, Electrophotography, subclasses 1+ for a combination of electrophotographic devices with diverse subject matter.

78 This subclass is indented under subclass 77. Compact arrangements of telegraph instruments or sets combining devices and connections for tapping lines and transmitting or receiving messages.

SEE OR SEARCH CLASS:
379, Telephonic Communications, subclasses 419+ for telephone sets.
439, Electrical Connectors, for a detachable connector adapted to be permanently secured to a connector; and see especially subclasses 477+ for an overhead line type connector having a handle or manipulating means.

79 This subclass is indented under the class definition. Devices for making and breaking the circuit in predetermined and fixed manner in accordance with code signals and involving a specific structure for each key or other transmitting element, whereby each transmits a different signal, thereby enabling a code or a

message to be transmitted by their successive action at the will of the operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:
17, for automatic transmitters.

SEE OR SEARCH CLASS:
340, Communications: Electrical, subclasses 307+ for transmitters utilized with signal box systems.
341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter.
361, Electricity: Electrical Systems and Devices, subclass 245 for pole changing transmitters and pole changers of the magnet and lever type energized by a local circuit controlled by a manually operated key or equivalent.

80 This subclass is indented under subclass 79. Code-transmitters structurally united or combined with some other instrument or having the function of some other instrument.

SEE OR SEARCH THIS CLASS, SUBCLASS:
77, for structurally combined instruments, not including transmitters.

81 This subclass is indented under subclass 80. Means for transmitting signals and printing the message simultaneously at the same station and comprising typewriters having electromechanical devices or attachments to or for typewriters.

SEE OR SEARCH THIS CLASS, SUBCLASS:
25+, for page printing systems.

SEE OR SEARCH CLASS:
400, Typewriting Machines, subclasses 70+ for electrically actuated typewriters.

82 This subclass is indented under subclass 79. Transmitters having means for producing one or more dots, as may be desired, and automatically as long as a key or lever is held in one position and a dash of desired length by placing or holding it in another position, the automatic dot means comprising a vibrator of some type.

SEE OR SEARCH THIS CLASS, SUBCLASS:
47, for other types of vibrating transmitters or receivers.

83 This subclass is indented under subclass 79. Code-transmitters in which one of the contact members is arranged to rotate or revolve.

SEE OR SEARCH CLASS:
340, Communications: Electrical, subclasses 309 and 535 for make and break wheel type signal box system transmitters.
341, Coded Data Generation or Conversion, subclasses 20+ and 173+ for a pulse code transmitter.

84 This subclass is indented under subclass 83. Rotary contact transmitters having a drum or cylinder for one of the contact members or on which contacts are placed.

SEE OR SEARCH THIS CLASS, SUBCLASS:
83, for rotary disk transmitters.

85 This subclass is indented under subclass 79. Code-transmitters having a contact member arranged to move to and fro in curved lines.

86 This subclass is indented under subclass 79. Code-transmitters having a contact member arranged to move into and out of contact in straight lines.

89 This subclass is indented under subclass 88. Electromagnetic instruments for making a visible record of dots and dashes or other code messages on a suitable recording surface, usually a paper strip or tape.

SEE OR SEARCH THIS CLASS, SUBCLASS:
17, for recorders adapted to automatic systems.
25, for page printing systems.
36+, for printing recorders.
48, for receivers and recorders peculiar to harmonic or tone telegraphy.
62, for recorders operated by chemical action.

SEE OR SEARCH CLASS:
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 220+ for electromagnets with armatures.
346, Recorders, appropriate subclasses.
361, Electricity: Electrical Systems and Devices, subclasses 139+ and subclass 211 for miscellaneous relay circuits.

90 This subclass is indented under subclass 89. Code recorders in which the record is made by photography.

SEE OR SEARCH THIS CLASS, SUBCLASS:
15, for automatic systems with photos:graphic recorder.

SEE OR SEARCH CLASS:
358, Facsimile and Static Presentation Processing, subclass 302 for facsimile systems with photographic recorders.
386, Television Signal Processing for Dynamic Recording or Reproducing, subclasses 30, 42+, and 128+ for photographic television recording or reproducing, particularly subclasses 38 and 117 for video apparatus combined with camera for recording television signal.

91 This subclass is indented under subclass 89. Code-recorders having a siphon for supplying the ink or fluid to produce the record.

SEE OR SEARCH THIS CLASS, SUBCLASS:
63, for telegraph systems in which siphon recorders are ordinarily employed.

SEE OR SEARCH CLASS:
324, Electricity: Measuring and Testing, subclasses 76.11+ for electric meters and meter movements.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 148+ for moving coil switches and subclass 222 for relay devices with a coil movable relative to a permanent magnet.

92 This subclass is indented under subclass 89. Code-recorders for indenting, embossing, or perforating the record in the tape.

SEE OR SEARCH CLASS:
197, Typewriting Machines, subclasses 6+ for letter-embossing typewriters.

93 This subclass is indented under subclass 89. Code-recorders having polarized magnets.

SEE OR SEARCH CLASS:
324, Electricity: Measuring and Testing, subclasses 76.11+ for electric meters and meter movements.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 78+ for polarity responsive electromagnetically actuated switches and subclasses 220+ for electromagnetic-mechanical transducers.

94 This subclass is indented under subclass 89. Code-recorders in which the record is made by pyrographic means or by burning the record into the tape.

95 This subclass is indented under subclass 89. Code-recorders having means for stopping the movement of the tape when each signal is recorded.

(1) Note. See search data under subclass 42 in this class.

96 This subclass is indented under subclass 89. Code-recorders having claims for or disclosing specific linking features.

SEE OR SEARCH THIS CLASS, SUBCLASS:
91, for inking by means of a siphon.

SEE OR SEARCH CLASS:
101, Printing, subclasses 335+ for inking devices employed in printing.
400, Typewriting Machines, subclasses 197+ for inking means adapted to typewriters.

97 This subclass is indented under subclass 89. Code-recorders in which the tape has a lateral movement, usually toward the recording element, in addition to the longitudinal feed movement.

(1) Note. See search data under subclass 42 in this class.

98 This subclass is indented under subclass 88. Devices usually comprising an electromagnet and armature for producing distinct audible signals in conformity to the code employed and characterized by some acoustical properties.

SEE OR SEARCH CLASS:
116, Signals and Indicators, subclasses 137+ for mechanical instruments or devices for simulating code signals.
335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 2+ for electromagnetically actuated circuit controllers generally and subclasses 220+ for electromagnets with armatures.
361, Electricity: Electrical Systems and Devices, subclasses 139+ and subclass 211 for relay circuits.

99.1 Private (e.g., acoustically shielded): This subclass is indented under subclass 98. Subject matter which restricts the sounds produced to the recipient of the signal.

(1) Note. The sound restriction is generally produced by a sound blocking device.

SEE OR SEARCH CLASS:
181, Acoustics, appropriate subclasses for a sound blocking device.
340, Communications: Electrical, subclasses 384.1+ for an electrical signalling sound producer.
381, Electrical Audio Signal Processing Systems and Devices, subclass 339 for an acoustic reproducing transducer with a sound attenuating element.

100 This subclass is indented under subclass 98. Sounders having means--such as box sounders, resonators, sounding boards, etc.--for intensifying the audible signals.

SEE OR SEARCH CLASS:
181, Acoustics, subclasses 177+ for sound intensifying horn.

101 This subclass is indented under the class definition. Manually operated lever instruments for making and breaking the circuit to transmit at will dash or dot or code signals.

SEE OR SEARCH CLASS:
116, Signals and Indicators, subclass 18 for mechanical instruments or devices for simulating code signals.
361, Electricity: Electrical Systems and Devices, subclasses 139+ for control circuits for electromagnetic devices. See subclass 211 for nonelectromagnetic relay control circuit.

102 This subclass is indented under subclass 101. Telegraph keys having a plurality of circuit closing contacts in excess of the usual number--two.

103 This subclass is indented under subclass 101. Telegraph keys for transmitting over a plurality of lines.

104 This subclass is indented under subclass 101. Telegraph keys which automatically close the line circuit when released or left open by the operator.

SEE OR SEARCH THIS CLASS, SUBCLASS:
76, for other devices for closing circuits.

SEE OR SEARCH CLASS:
200, Electricity: Circuit Makers and Breakers, subclasses 33+ for retarded circuit controllers generally.

105 This subclass is indented under subclass 101. Telegraph keys in which the lever, finger button, or contacts may be adjusted or swung around to facilitate transmission with either hand or to vary its movements to prevent hand fatigue.

106 This subclass is indented under subclass 101. Telegraph keys having one or more of the contacts movable or revoluble, so that the points of

contact may be renewed when they are roughened or burned by heavy currents or use.

107 This subclass is indented under subclass 101. Keys in which the contact lever oscillates on a knife-edge pivot.

108 This subclass is indented under subclass 101. Telegraph keys in which the key lever is mounted to swing horizontally.

SEE OR SEARCH THIS CLASS, SUBCLASS:
82, for automatic vibrators having horizontal swing.

109 This subclass is indented under subclass 101. Telegraph keys made of spring metal or connected to their supports by leaf springs functioning as pivots.

110 This subclass is indented under subclass 101. Inventions involving the structure or arrangements of the finger buttons or manipulating handles of telegraph keys.

SEE OR SEARCH THIS CLASS, SUBCLASS:
104, for modifications of finger button structure adapted to self-closing keys.

111 This subclass is indented under the class definition. Specially prepared strips adapted to receive or to transmit a record of code signals. Includes sensitized and chemically prepared tapes, as well as those having structural features adapted for use in either recording or transmitting code signals.

SEE OR SEARCH CLASS:
84, Music, subclass 115 for automatic selectors of the winding and rewinding type; subclass 146 for trackers and sheets for automatic selectors; and subclass 161 for note sheets for automatic selectors, for use in automatic musical instruments.
400, Typewriting Machines, subclasses 191+ for inking ribbons specific to or adapted to typewriters.

112 This subclass is indented under subclass 111. Tapes especially adapted to automatic or printing systems by the provisions of code perforations, notched edges, pole changing characteristics, etc.

SEE OR SEARCH CLASS:
84, Music, subclass 115 for automatic selectors; subclass 122 for automatic selectors of the winding and rewinding type subclass 146 for trackers and sheets for automatic selectors; and subclass 161 for note sheets for automatic selectors, for use in automatic musical instruments.

114 This subclass is indented under the class definition. Supporting stands adapted to facilitate connecting up or manipulating telegraph instruments or arrangements thereof specific to telegraphy and not otherwise classifiable.

115 This subclass is indented under the class definition. Electrical instruments for assisting beginners in learning code signals and manipulating telegraph instruments in sending or receiving.

SEE OR SEARCH CLASS:
434, Education and Demonstration, subclass 222 for mechanical devices for teaching or practicing telegraphy or simulating code signals.

116 **Spark gap or arc discharge:**
This subclass is indented under subclass 66.1. Subject matter wherein a transmitter employs the negative-resistance characteristics of an arc or the oscillatory discharge of a capacitor through an inductor and a spark gap as a source of radio frequency oscillations.

SEE OR SEARCH CLASS:
307, Electrical Transmission or Interconnection Systems, subclasses 106+ for pulse producing systems which may employ a spark gap for discharging a condenser.
313, Electric Lamp and Discharge Devices, appropriate subclasses for spark gap or arc devices, per se.
314, Electric Lamp and Discharge Devices: Consumable Electrodes, appropriate subclasses for spark gap devices with consumable electrodes.
331, Oscillators, subclass 127 for oscillators of the spark or open arc type.

332, Modulators, appropiate subclasses for modulators of the spark or open arc type.

117 Coherer:

This subclass is indented under subclass 66.1. Subject matter including a variable resistance device consisting of loosely packed conductive particles placed between two electrodes, the resistance of the conductive path between the electrodes being a function of an applied electric field.

SEE OR SEARCH CLASS:

257, Active Solid-State Devices (e.g., Transistors, Solid-State Diodes), subclass 43 for active solid-state type coherers.

329, Demodulators, subclass 371 for a coherer type amplitude modulation demodulator.

118 RECEIVERS:

This subclass is indented under the class definition. Miscellaneous devices for converting received telegraph signals into a perceptible form.

SEE OR SEARCH THIS CLASS, SUBCLASS:

63, for long transmission line systems having large distributed capacitance, such as cables.

SEE OR SEARCH CLASS:

324, Electricity: Measuring and Testing, appropriate subclasses for electric meters and electric meter movements.

329, Demodulators, appropriate subclasses for demodulators of the type used to demodulate radio waves.

335, Electricity: Magnetically Operated Switches, Magnets, and Electromagnets, subclasses 2+ for electromagnetically actuated circuit controllers generally; and subclasses 220+ for electromagnets with armatures.

340, Communications: Electrical, subclasses 287+ for signal box receivers; subclasses 366+ for visual receivers; subclasses 384.1+ for audible receivers; and subclasses 407.1+ for miscellaneous, such as tactual receivers.

345, Computer Graphics Processing, Operator Interface Processing, and Selective Visual Display Systems, subclasses 1.1-3.4 for visual display systems with selective electrical control.

361, Electricity: Electrical Systems and Devices, subclasses 139+ for miscellaneous relay circuits.

370, Multiplex Communications, appropriate subclasses for multiplexing.

375, Pulse or Digital Communications, for pulse communications in general; and subclasses 316+ for pulse receivers.

455, Telecommunications, subclass 130 for radio receivers generally.

119 Optical member:

This subclass is indented under subclass 118. Subject matter in which optical devices are used.

SEE OR SEARCH CLASS:

455, Telecommunication, subclasses 600+ for optical communications.

120 With electron tube or solid-state device:

This subclass is indented under subclass 118. Subject matter which contains an active element such as a transistor or electron space discharge device.

FOREIGN ART COLLECTIONS

The definitions for FOR 100 through FOR 103 below correspond to the definitions of the abolished subclasses under Class 178 from which these collections were formed. See the Foreign Art Collections in the Class 178 schedule for specific correspondences. [**Note**: The titles and definitions for *indented* art collections include all the details of the one(s) that are hierarchically superior.]

FOR 100

Foreign art collections for systems for producing at the receiver a facsimile of the handwriting, drawing, etc., made by the operator in manipulating the pen of the transmitting instrument.

FOR 101

Foreign art collections for writing systems employing alternating current with or without an independent motor.

FOR 102

Foreign art collections for writing systems employing a direct current varied by the motions of the stylus in writing.

FOR 103

Foreign art collections for code transmitters in which code characters or contacts are conveniently arranged on a tablet, the other contact being on a movable hand-controlled stylus; also inventions in tablets or styluses, per se, specific to telegraphy.

END